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### Source Evaluation Strategies for the Misinformation Age

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## Source Evaluation Strategies for the Misinformation Age

### Abstract

This article provides a summary of recent criticisms of checklist approaches to source evaluation to build a fuller picture of the issues involved with relying on checklists and factors that have increased the complexity of evaluating sources in the misinformation age. It then looks at new source evaluation strategies and methods which can be used by teachers and librarians to better prepare students for the internet realities they now face in their academic and personal online research.

### Keywords

misinformation, source evaluation, online research, strategies, information literacy

### **Source Evaluation Strategies for the Misinformation Age**

Since internet resources first became available, librarians and faculty in higher education have searched for methods of teaching source evaluation that would best help college students choose and use online information that is credible. Arguably the method which became the most widely used in colleges and universities was librarian Sarah Blakeslee's C.R.A.A.P test, developed at California State University at Chico (Blakeslee, 2004). C.R.A.A.P. is an acronym for currency, relevance, authority, accuracy, and purpose - the five different criteria the test uses to evaluate sources. This memorable checklist acronym was designed to get students' attention and to help them keep each step of the evaluation process in mind as they considered the value of a source.

While teachers and librarians have used and adapted the test in different ways since its creation, the general way the test works is for students to ask questions of their source for each letter. For the letter "C" (currency), students might ask when the source was published; for the letter "R" (relevance), they might ask how the source relates to their topic; for the first "A" (authority), they might ask about the author's credentials; for the second "A" (accuracy), they might try to verify information in another source; and for "P" (purpose), they might consider if the source is trying to sell something, teach something, or has another purpose. A full listing of the suggested questions for each letter of the C.R.A.A.P. test can be found on the Meriam Library website here:

<https://library.csuchico.edu/sites/default/files/craap-test.pdf> (Meriam Library, 2010).

In the earliest days of the internet, checklist style tests like the C.R.A.A.P test addressed the concerns of faculty who previously would have asked their students to only choose from sources from within the collections of their college library, as those have already been vetted by librarians as being appropriate for academic research. Suddenly confronted with students who instead wanted to use new and unfamiliar internet sources (often of varying quality), checklists like the C.R.A.A.P test became an important and commonly used teaching tool which continue to be used widely. As librarian Marc Meola

points out, “in the first years of the free Web’s emergence, there were fewer peer-reviewed resources available than there are today. At that time, the checklist model may have been a reasonable approach to evaluation...” (Meola, p. 339). However, the internet quickly grew to contain many different genres of information, some completely new, others online versions of formerly print-only sources, including peer-reviewed journals and other academic publications.

But as the nature of the internet evolved and changed in dramatic and important ways, the nature of these checklist style approaches to source evaluation for the most part remained static. Wichowski and Kohl (2013) did advocate for keeping the “spirit” of the C.R.A.A.P test while updating each item to better account for a digital ethos, but their updates to the C.R.A.A.P test do not seem to have been widely adopted. As Marc Meola points out, “The checklist model has been the dominant method for teaching undergraduates website evaluation since the mid-1990s. Although the nature of the information available through the web has changed since then, the checklist model has not” (2004, p. 342). Since the checklist model does not consider many of the ways that the internet has grown and changed, it has started to receive criticism for not doing enough to help students navigate the current digital landscape.

### **Criticisms of Checklist Approaches**

Recent criticism of the C.R.A.A.P test, and skepticism of its continued value without significant updates, has come from both librarians and other educators. This criticism falls into a few general categories:

#### ***Emphasis on Surface-level Analysis***

Many steps in traditional checklist models ask students to spend a lot of time looking at the surface level details of a website, to consider things like:

- Does the website look professional?
- Are there words spelled wrong?

- Is the grammar correct?
- Are there a lot of advertisements on the website?

The C.R.A.A.P. test itself includes “Are the links functional?” and “are there spelling, grammar, or typographical errors?” as questions to ask during evaluation (Meriam Library, 2010). While these can be useful to consider, it has been argued that focusing so much on these surface level details no longer makes much sense. As librarian M. Connor Sullivan notes, “...Librarians still recommend evaluating superficial aspects of websites, such as ‘sloppy or unprofessional design...and ALL CAPS’ ...To the extent that individuals genuinely use surface characteristics as a mental shortcut for accessing credibility, such recommendations only perpetuate the problem” (Sullivan, 2018, p. 3) because creators of misinformation have become sophisticated enough to create websites that do appear, at least on a surface level, perfectly professional.

Educational technologist Michael Caufield echoes this concern, pointing out that it is not only ineffective to emphasize surface details but that this approach also has great potential to cause harm, because misinformation creators know how to exploit the way that people tend to “judge resources by the look and feel and what [those resources] say about themselves” (Caufield, 2017 April 13). In an interview with librarian Barbara Fister from Project Information literacy, he summarizes his concerns by remarking that “the signals that we teach students to look for are often wrong. How expensive is it for a fake website to look professional and well edited? Not very” (Fister and MacMillian, 2019, n.p.).

Websites that provide misinformation do their best to look as legitimate as possible. Researchers from the Stanford History Education Group have pointed out that “while the kinds and number of questions vary, most versions of the CRAAP test direct students’ attention to a site’s top-level domain, the information on its About page, the authority of its links, the presence or absence of banner ads, the listing of contact information, and the currency and frequency of updates. The basic assumptions of the CRAAP test are rooted in an analog age” (Wineburg et al, 2020, p.7). This can lead students to making

assumptions about sources that might work well for print sources but may not be as relevant for online information.

One recent study by researchers from the field of cognitive science also pointed out that any “...narrow focus on source evaluation skills is problematic because typical cues for credibility have been hijacked, making source evaluation increasingly difficult...cues to credibility los[e] effectiveness as increasingly sophisticated [web design] approaches blur the line between what is credible and what is less credible” (Marsh & Yang, 2017, p. 401). Traditional, surface level cues are no longer enough for evaluating internet content, but that is often a large part of checklists used for teaching evaluation.

Many checklist approaches also ask students to place less trust in sources which rely on advertisements. The C.R.A.A.P. test asks students to consider whether or not a source is trying to sell them something, and then asks students to consider what .com extensions reveal about sources (Meriam Library, 2010). This can also make very little sense in an era where traditional journalism has come to rely on advertisements over subscriptions and when reliable sources can also be .com sites. In 2018, digital ads provided 35% of newspaper’s advertising revenue (“Trends and facts on newspapers...”, 2019). Highly credible news outlets often run ads on their pages and some of these news outlets even create sponsored content articles or features for their advertisers. A larger problem which does need to be focused on by teachers is that students are often unable to identify whether a source they find online is journalism or sponsored content and why that might matter to their judgment of whether or not the source is credible. A 2016 study by researchers from Stanford University found that 80% of middle school students could not tell the difference between a sponsored article (advertisement) and a regular news article (Wineburg et al., 2016, p. 10). Since advertisements can co-exist side by side with both credible information and misinformation, and since students may have trouble recognizing whether or not something is an advertisement, using advertisements as a signal for source evaluation may not help students enough without further guidance.

***Missing Emphasis on Internet Literacy***

While placing much importance on the surface features of online sources, checklist approaches do not help students understand the ways the internet functions and how that functionality can impact their source evaluation decisions.

Peter Lor has pointed out that in the present-day media environment, much checklist-style advice is invalidated by the new ways in which the internet works. He uses the example of the (now-widespread) use of bots to spread fake news as working to invalidate common source evaluation advice which tells students to “place more credence in news items that appear in multiple sources” (Lor, 2018, pg. 315). Students may not realize that just because they are seeing a news story everywhere, over and over again, that does not mean it is more credible. Instead, that might mean that it contains misinformation or messaging that bots are being employed to spread.

Even when checklist approaches do include elements of internet functionality, they do not go far enough. For example, many checklists for internet evaluation ask students to consider the URL extension of the site (is it .com, .gov, .org, etc.). But these checklists never explain—and teachers may not either—how these domain names are assigned and why, for example, having a .org domain does not actually mean that the site was created by a credible, verified organization (Wineburg and Ziv, 2019, n.p.). Using domain names as a shortcut can easily backfire.

Students also need to be aware of the ways in which search algorithms can imply credibility that is not actually there. For example, Lane Glisson uses the example of how misinformation about Hillary Clinton’s health was spread before the 2016 election: “watching one YouTube video on Clinton’s health brings up a collection of related videos on the sidebar that say the same thing, which leads the viewer to assume that the diagnosis is verified” (Glisson, 2019, p. 476). The way that search engines curate news feeds for information seekers can influence their perceptions of what is credible and what is not in ways like this that are subtle but often highly misleading. An algorithm could just as easily recommend a

myriad of dubious sources as it could credible ones, and these kinds of recommendations or influences should not be trusted without further examination.

In a similar way, students need to be aware that the first source in any page of search results is not necessarily the best. Instead, it might just be the most often viewed result, a webpage that has paid to rank high in search results, or a recommendation based on the search history and assumed preferences of someone else who recently used the computer. Search results are created by complex algorithms and do not automatically recommend credible sources: "...it has become vitally important to place information into a wider context to adequately evaluate its credibility, as well as teach how information is ranked and presented on search engines and social media" (Fielding, 2019, p. 662). Without any knowledge of how internet search engines work, students may not realize that these search engines are not necessarily returning the most credible results for any search they run.

Checklists have also been criticized for trying to transfer the criteria used to evaluate traditional printed sources to an online environment because this does not take into account the many new genres of information that only exist online: "students deserve a more substantial treatment of genre and meaning than standards and checklists can provide" (Glisson, 2019, p. 465). Teachers may "view the internet as a monolithic sort of medium rather than the repository of varied genres that it has become today, and users engaged in tasks of a singular nature. The truth is, readers might now go to the Internet for entertainment, to find out what friends are up to, or to discover which brand of a product might be best--in addition to more serious, focused research tasks" (Ostenson, p. 37). Ignoring new types of sources or focusing only on traditional types of sources that have been replicated online leaves a gap in students' source evaluation abilities, because new media sources not only exist but are prevalent. Students would benefit greatly from having a more nuanced understanding of how to evaluate nonacademic sources for credibility as well. Because students are getting most of their information from



the internet, they need a better understanding of how the internet works in order to become information literate in an online environment.

### ***Lack of Critical Thinking and Analysis***

Librarian Nick Rochlin has pointed out that there is a current misunderstanding that “fake news can be contested on an intellectual spectrum of true-untrue, prescribed by an independent and objective source. In an era of post-truth and mass social divide, this is no longer viable” (Rochlin, 2017, p. 386). Since most checklist approaches like the C.R.A.A.P test tend to promote the idea that a source is either credible or not, this also presents a problem in a media environment where the truth is often not that straightforward.

If the only two choices you have are credible or not credible, where do you place potential sources that may contain a few small errors or some strong potential bias, but which might also have value in the context of the research being conducted? Context becomes much more important in situations like this, and students will need to be able to do a much more sophisticated weighing of the evidence before them to decide whether or not, and perhaps more importantly how, they might decide to include such problematic but relevant sources into their work: “it is the form of the checklist, with its over simplistic (and sometimes irrelevant) yes-no questions, that is problematic about current teaching efforts.” (Ostenson, p. 38). Checklists may lead students to believe that research is a simple linear process, complete at the end of a checklist, instead of a recursive process that continues throughout a project as needed.

A checklist approach may also imply that source evaluation is a quick and simple process that should not involve much time or effort. Even though a checklist seems quick and short, this approach often “assume[s] students will analyze the source to an extent that many people don’t have time for, especially when working with information online.” (Lenker, 2017, p. 722). Students could check everything off the list but still be left with a source that may have credibility issues that they did not

encounter through the use of that checklist. This might be because they did not go far enough in their analysis or it might be because the checklist questions limited them to a type of analysis that their source was able to pass even though it had credibility issues. The format of the checklist itself may encourage too surface level of an analysis, but it also may deter students from doing a deeper analysis as well. As Michael Caufield has pointed out, checklist approaches “address the problem of cognitive overload [in online research] by giving students techniques that increase cognitive overload rather than reduce it. Students then glom on to the most salient signals and end up, in many cases, making worse decisions than if we had taught them nothing at all” (Fister and MacMillian, 2019, n.p.). Even though checklists are meant to provide a shortcut, they can become overwhelming, and if checklists do not ask the right questions, misinformation sources can pass the test if students are not taught to do a deeper critical analysis of sources before making a final decision.

### **Alternatives to the Checklist**

Critics of the checklist approach to source evaluation have proposed alternatives. Some of these alternatives are different focuses or approaches, while others are more detailed methodologies.

Several librarians have proposed different focuses that teachers can take when they are thinking about how to approach teaching source evaluation. Rather than using checklist methods like the C.R.A.A.P. test, Mark Lenker has proposed that librarians instead take a developmentalist approach in which students are taught to place more value on sources that give them “opportunity to learn something that significantly develops [their] perspective on the question at hand.” (Lenker, 2017, pg. 721). In this approach, students are asked to think about how the information they find challenges them and helps them think about their topic in different ways (Lenker, 728). To do this, students will have to seek out information that does more than just confirm opinions or beliefs they already have, with the hopes that they will learn to value sources that help them learn. This is a technique that could be used

along with other methods to help ensure that students are more fully exploring the extent of available information on their topics.

Jonathan Ostenson advocates for teaching source evaluation by focusing on the “decision-making process that experts go through in making judgements and the behaviors or strategies they engage in to make those decisions.” (Ostenson, p. 39). He includes checklist behaviors in his recommendations, but combines them with a focus on process, teaching “strategies and behaviors” rather than checkboxes, and focusing on the development of a student’s understanding of how expert researchers evaluate sources from start to finish, and why they make the choices they make along the way. This strategy, in particular, seems in-sync with the findings of researchers from the Stanford Study (Wineberg and McGrew, 2019), which found that fact-checking experts outperformed both college students and college professors (historians) at evaluating websites because of the different kinds of strategies each group employed. Leveraging the strategies of experts has been shown to help with source evaluation skills.

Other librarians have recommended taking a cognitive development approach to source evaluation, which takes into account that many college students, especially traditional students in their first year, are still in the dualism phase of their cognitive development, where they believe that there is a right and a wrong answer to everything and will search for the right answers when they conduct online research (Benjes-Small, et al, 2013, p. 43). In this approach, teachers acknowledge the place their students may be starting from “by starting students in an activity that accepts their natural dualistic thinking and then eases[ing] them towards more multiplistic and relativist viewpoints” (Benjes-Small et al, 2013, p. 47). The activities recommended by the authors of this suggested approach use constructivist learning theory to meet students where they are and help them arrive at a more nuanced understanding by the end of the lessons proposed. This approach can help students gain an appreciation for the complexity of evaluating online information, which checklists can obscure.

***Lateral Reading / SIFT approach***

One important finding of the Stanford Study (Wineburg et al., 2016) was that source evaluation experts routinely practiced a skill called lateral reading, where they went outside of the website they were looking at to discover more about its reputation and purpose. Checklist approaches usually limit students to looking at the website itself, while lateral reading asks students to go outside of the source they are looking at to verify its credentials by other means. Teachers can ask students to check to see if the website has a Wikipedia page with information about its history and reputation, or to find out who owns a website and whether or not that might influence its content. Students can look up article authors online to verify their expertise or find out more about their writing careers. A quick google search might turn up reviews of the website or other information about its reputation as well.

Educational technologist Michael Caulfield uses lateral reading as the cornerstone of his revision to the checklist approach to source evaluations: SIFT, or the four moves. Although it involves an acronym, it is not a checklist. The steps involved in the SIFT process are: Stop, Investigate the Source, Find Trusted Coverage, and Trace Claim, Quotes, and Media back to their Original Source (Caulfield, 2019). In the “Stop” step, students think about the context of their research and then ask themselves what they already know about the source and whether that is enough for their purpose. In “Investigate the Source”, students do lateral reading on their sources by looking for outside information about that source and its reputation. In “Find trusted coverage”, students might fact check information in the source in a source that is trusted, or students might look for a more trusted source with the same information. In “Trace claims, quotes and media”, students could look for the original context of quotes, images, videos, or other media used in the source to see where it came from and whether or not it is being used in the right context or if it had been edited or altered from the original at all. In each step, there are specific types of questions students can ask themselves or activities that teachers can ask

students to do, but none of these are yes or no questions and each step in the process will ask students to think critically about their sources.

It has recently been argued that teaching students about source evaluation and misinformation requires applying the ACRL information literacy framework more broadly than only using the authority frame (Faix & Fyn, 2020). Most of the questions in the C.R.A.A.P. test would fall under the “Authority is Constructed and Contextual Frame”, where a more expansive approach like SIFT can be seen as covering many more of the frames, as it asks students to trace claims to their original context, to find trusted coverage on the same topic, and to do much more investigation of their sources. This approach gives students a much wider set of strategies they can apply to any type of information they find online, for their academic and personal research.

### **Conclusion**

Continuing to use checklist approaches without updating them for the new media environment students are now navigating, which is so different from that of even only a few years ago, will potentially cause many problems for students when they encounter misinformation online. In 2020, researchers from the Stanford History Education Group conducted a study on how college students evaluate online information and came to the conclusion that the ways that teachers and librarians had taught these students to evaluate sources, in particular by using the C.R.A.A.P. test, were not actually effective at helping students recognize online misinformation (Wineburg et. al, 2020, p. 7). The majority of students in the study did not correctly identify a website as satire rather than news, and many students in the study trusted a website simply because it had a .org domain, even though further analysis would have revealed its strong bias to them.

Librarians and faculty need to focus on teaching critical thinking skills rather than teaching superficial checklist approaches, which can be especially challenging when they have limited time and when students may be focused more on a specific task, like finding two sources for their projects. In the

new media environment, however, students need to recognize, question, and think critically about sources more than ever before. This includes understanding that there is no such thing as an unbiased source while still being able to make an informed decision about which source to choose and use for their information need. It is more than just being able to identify when information is fake, students need to be able to evaluate information in order to determine its bias and whether or not it contains misinformation or other misleading statements. The evolution of the online environment will not slow down, so helping students develop habits of thinking that will keep up with an ever-changing reality is essential.

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